Bearhawk #164 "Three Sigma" Checkout Report

Date: 18 May 2008

Objective: Weight and Balance

Procedure:

The weighing was done in the hangar using the new EAA Chapter 1000 Intercomp Racing Products Model SW500 scales (http://www.intercomp-racing.com). The scales were zeroed prior to the weighing. The main gear were jacked up similar to the method used for the fuel flow test and lowered onto the scale pads. The tailwheel was jacked up with the shop crane to level.

The configuration was with full fuel tanks (51 gallons) and one front seat with two front seat bottom cushions. No other seats were installed. The engine had 10 quarts of oil in the pan. The oil filter was empty, as the engine had not been run since the last oil change.

The moment arms of significant locations were measured by dropping a plumb bob and marking on a piece of masking tape on the floor.

Results:

An unexpected result was as the aircraft was leveled, the fuel vent tubes, located at the front top outboard corner of the tanks, were no longer at the highest point in the tank. A small amount of fuel (discontinuous drips) vented out of each tank.

The scales were turned on and the weights read.
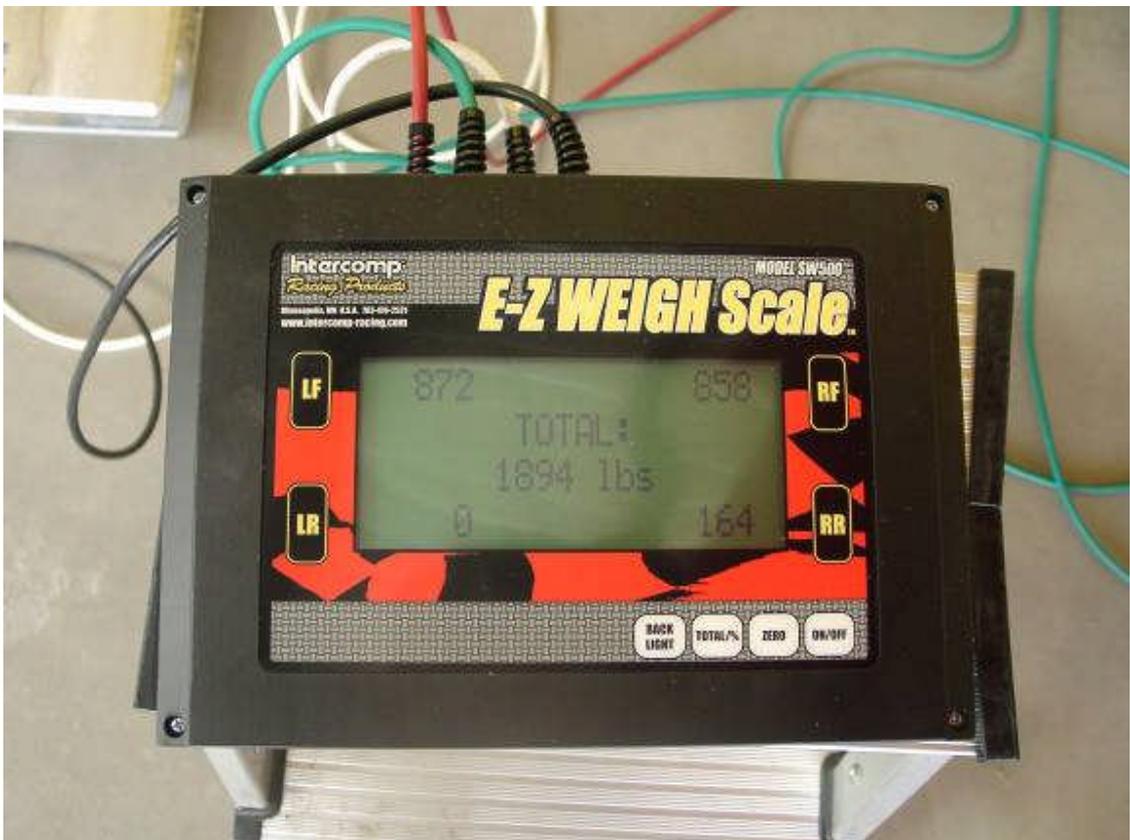
Left Main: 872 lbs
Right Main: 858 lbs
Tail Wheel: 164 lbs

Left Main Tare (wheel chocks): 2 lbs
Right Main Tare (wheel chocks): 2 lbs
Fuel Weight (51 gallons): 306 lbs

Datum: Wing leading edge

Measured Arms (inches aft of datum)

Main Gear	-1.625
Tail Wheel	195.875
Engine Oil	-36.125
Front Seat	21
Fuel Tanks	26.4375
Rear Seat	56 (estimated)
Rear Seat Front Hardpoint	38.8125
Rear Seat Rear Hardpoint	66.375
Baggage Area	77
Rear Hardpoint	90.1875
Pillow Net	111.1875

Calculations resulted in an empty weight of 1584 lbs and a center of gravity 13.4 inches aft of datum.

On 24 May 2008 the second front seat and back cushions were added for a total of 19 lbs. The new empty weight was 1603 lbs and a center of gravity of 13.5 inches aft of datum.

Conclusions:

The empty weight and cg were determined.